(Re-)exploring the link between devolution and regional disparities in Italy

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April 2011

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Abstract - The existence of an economic dividend - in terms of regional disparities - of the global devolutionary trend registered over the past three decades is still ambiguous both on theoretical and empirical grounds and it is likely to be case-specific. With respect to the Italian case it has been argued that since 1996, even in an indirect way, a negative effect of devolution on regional disparities arose. However, our empirical analysis suggests that the decline in Italian regional disparities over the decade 1996-2006 has been decisively driven by the dynamic of population and, to some extent, by the loss of competitiveness and consequent low relative performance of northern regions. Therefore, the link between devolution and spatial disparities appears to be rather spurious and, if any, its beneficial effect has been uneven both in time and space.

Keywords: Economic Dividend, Devolution, Spatial Disparities, Spatial Economic Policy, Decentralisation, Italy.

1. Introduction

Increasing pressures towards decentralisation have been worldwide registered beginning from 1970s (Rodríguez-Pose and Gill, 2003;). This global trend has a theoretical background stemming from fiscal federalism literature (Oates 1972; Oates 1999) and principally based on beneficial effects of citizen's participation, accountability and transparency (Rodriguez-Pose and Gill, 2005) enhanced by Tiebout (1956)'s *foot voting* mechanism.

On the empirical side the focus is on growth-effects and much less attention has been paid to the effects of devolution in terms of spatial disparities (Calamai 2009; Rodríguez-Pose and Gill, 2004; Pike, Rodrìguez-Pose et al., 2010; Tselios, Rodrìguez-Pose et al. 2011). The empirical evidence developed by these studies is rather mixed, demonstrating that the effects of devolution on spatial disparities are

case-specific. This consideration raises the circumstance for further research based on single country case-study.

We recognise that, with regard to the Italian case, it has been argued that a beneficial effect of the devolutionary process beginning in 1995 - in terms of reduction of spatial disparities - arose, even if an indirect way (Calamai 2009). Indeed, over the ten years following first introduction of devolutionary measures in Italy, a significant reduction of regional disparities is registered and in the Italian context this phenomenon will rather necessarily result in a reduction of the North-South divide.

However, we believe that the negative correlation between the increase in (the measure of) devolution and the decrease in spatial disparities is rather misleading. Indeed, closely considering the relative socio-economic performance of Italian regions, our interpretation of this downturn in spatial disparities changes in favour of a more articulated framework. Indeed, as first critical evidence should be considered that in the decade 1996-2006 the relative position of Italian regions with respect to GDP (percapita), as shown in Figure 1 below, remained unchanged therefore reproducing the same North-South divide.

INSERT FIGURE 1 ABOUT HERE

This persistent dualism should be not neglected in interpreting the reduction of regional disparities, in terms of Gross Disposable Household Income (GDHI) percapita, shown in Graph 1

INSERT GRAPH 1 ABOUT HERE

As already mentioned, this phenomenon has been linked with the devolutionary trend, claiming for a desirable disparities-reducing link between devolution and regional disparities (Calamai, 2009) basing the analysis essentially on the opposite trend of (the measure of) devolution and (the measure of) regional disparities

INSERT GRAPH 2 ABOUT HERE

In Calamai (2009)'s words

Since the 1996, the North-South gap, which had been increasing constantly since the 1980s, started to show a significant decline. In addition, the partial association between the two phenomena is further

supported by their markedly high correlation coefficient of 0.89 (statistically significant at the 0.1% level), which suggests, for the period under consideration, a strong positive correlation between this measure of devolution and the downturn in regional per capita differentials (Calamai, 2009, p. 1140, emphasis added).

The mechanism throw which the devolutionary process would operate could be illustrated according to following scheme proposed by Calamai (2009)

INSERT FIGURE 2 ABOUT HERE

The idea expressed in Figure 2, building on Azfar, Kahkonen et al. (1999), is as follows. Devolution, by means of proximity to the electorate and enhanced accountability of local governments, accompanied by a well-developed social fabric and civil society, indirectly stimulates economic growth and generates "a cumulative and self-reinforcing phenomenon, in which economic dynamism nurtures its legitimacy and thus feeds back into the devolutionary push" (Calamai, 2009, p. 1147). This process is further stimulated by regional policy *via* both the increased autonomy and Europeanisation of development policy.

We believe that the operation of this theoretical framework is worth empirically testing. Put differently, since "decentralization is not an end in itself but rather should be designed and evaluated for its ability to achieve broader objectives of […] equity, efficiency, quality and financial soundness**"** (Bossert, 1998, p.1513), as contribution to the political and economic debate, it is worth empirically exploring to what extent the supposed virtuosos cycle stemming from the devolution process operates.

The first element to be taken into account is represented by Italian regional policy and its devolved implementation. Therefore, next section will place Italian regional policy in the appropriate historical perspective briefly reviewing empirical studies concerning its effectiveness in reducing regional disparities. Section 3 considers the evolution of pivotal socio-economic factors, linked to the devolutionary process, involved in the economic performance of Italian regions with particular regard to the eventual shift in Southern variables able to explain the regional convergence registered over the period considered. Section 4 addresses the issue of 'what could cause the reduction of regional disparities?' proposing a reading in terms of population dynamic and Northern relative performance. Section 5 concludes.

2. Regional policy and regional disparities in Italy

The long history of Italian *economic dualism* dates back to the unification process in 1861 and ever since many policies dealing with this dualism followed one another. A complete review of policies and their effectiveness goes beyond this paper's purpose and interested readers are addressed, for example, to Spadavecchia (2007) and Del Monte and De Luzenberger (1989), or, in a comparative perspective, to Bachtler, Wishlade et al. (2001).

In general terms, regional policy in Italy has been implemented according to different main objectives over time. In the post WWII period (and until 1980s) it was argued that the consistent gap between the two macro-areas of the country was principally due to insufficient infrastructure endowment, especially intended as physical capital (both private and public), resulting in a relative low labour productivity and high transportation costs (Cellini, 2004). Therefore, during the first phase of *Intervento Straordinario* (Special Aid Policy) regional intervention measures, based on the special institution *Cassa per le opere straordinarie di pubblico interesse per il Mezzogiorno*[1], more often called *Cassa del Mezzogiorno* (Southern Italy Fund), were limited to the South (namely, eight southern Italian regions: Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicilia and Sardegna) with the main aim to fill the infrastructural gap. During this period many civil infrastructures construction (waterworks, electricity, roads, etc.) have been accompanied by the land reform[2]. In short, this reform comported an extensive land expropriation in specific areas where large estates were concentrated; expropriated lands have been divided into small units of 5-6 hectares and these units have been assigned and sold by the government to landless agricultural workers (Gaetani D'Aragona, 1954). All in all, during its first ten years (1950-1959), although with the contradiction consisting in the fragmentation of the agriculture production system (probably) responding to the hidden political objective to organise the *southern dependency* (Bagnasco, 1984), regional policy officially aimed to create 'prerequisites' for future southern industrialisation process, while alleviating, in the short term, the severe unemployment problem (Giordano and Greco, 2003). However, according to Del Monte and De Luzenberger (1989, p.222) the policy of public works realised in this period, rather than being propulsive, was mainly of a social nature: "one cannot therefore speak of infrastructure policy with pre-industrialization characteristics, as the public works in question were not directly connected with a plan for future development". Therefore, according to the authors, a real policy of industrialization in the South was postponed to 1957.

Indeed, the following phase, during the 1960s, was characterised by higher emphasis on active industrialisation also with the aim to relocate economic activities from the economic core areas in the Centre-North to the depressed regions in the South. Policy measures were oriented both to capital and workforce. Regarding the former, principally in order to overcome the lack of external economies, they included the creation of growth poles via the instruments of (i) financial incentives (e.g. subsidies, capital grants and loans at a subsidized rate), (ii) fiscal incentives (e.g. exemption from profit taxes for industrial capital, exemption of customs duties) and (iii) direct investment by state-controlled enterprises (under the Act No. 634, reiterating measures regarding public investments provided in 1950 Act. No. 646, at least 40% of their total investment and 60% of new investments by state controlled enterprises were to be located in the South). As for the labour, should be noted that, due to

[1] This institution was implemented in 1950 by Law 646.

[2] This land reform is based on two acts: the first dated 12nd May 1950 Law 230 (known as *Legge Sila* due to its limitation to the Calabria region) and the second, October 21st of the same year (Law 841), extended land expropriation in specific areas where large estates were concentrated (Abruzzi, Molise, Puglia, Sicilia, Sardinia, Lazio, southern Toscana, Po river delta region).

national labour agreements allowing for different wages linked with the cost of living on geographical base (*gabbie salariali*, wage cages) which resulted in a wage differential 10 per cent larger than the productivity differential, the South enjoyed lower costs per unit of production (Helg, Peri et al., 2000). Nevertheless, the kind of industry developed in the South was capital intensive because of the distortion created by the capital-based system of incentives and these industries did not generate substantial multiplier effects (Smith, 1981).

A third phase of strengthened regional policy in favour of South was developed during the period between 1969 and 1973 characterised by (i) an increase from 50% to 70% of tax free profits reinvested in the South and (ii) a reduction of 20% of the payroll tax for each worker hired after 1968. Moreover, (iii) state-owned enterprises' investments in the South rose from 44% in the period 1957-68 to 58% in the period 1969-73 (Del Monte and De Luzenberger, 1989).

A final phase of regional policy decreasingly concentrated to the industrial development of the South was introduced by 1976 Act No. 183 (i) simplifying applications procedures, (ii) fixing the subsidized interest rate equal to 30% of the market rate only for investment lower than 15 billion lire (rather than the previous fixed and predetermined figure) and (iii) introducing full payroll exemptions for workers hired by manufacturing firms after 1 July 1976.

Results achieved during these two decades of regional policy were very weak. The net increase of 608,554 in industrial employment in the south was disappointingly small and the policy based on growth poles was unsuccessful in developing local private market-oriented industries (Smith, 1981) generating what was called a process of 'industrialisation without development' (Saraceno , 1980).

Partially due to substantial policy ineffectiveness, in addition to EU pressures for higher *competitiveness* and reduction of state aid to domestic industry, the political paradigm about the development of Southern Italy shifted from regional industrial policy, based on Special Aid Policy[3], to direct intervention on household income and further (during the 1990s) on Ordinary Intervention.

Graph 3 graphically shows the evolution of regional policy, during the period from 1950 to 1981, utilising of two indices adapted from Del Monte and De Luzenberger (1989). The first index - *IRIP* (Index of Regional Industrial Policy) - focuses on industrial regional policy and is obtained by dividing the sum of investment in public and semi-public enterprises in Southern Italy (*Is*), financial aid for the development of Southern Italy industry in the form of subsidised interest loans to industries (*Fs*) and investment grants in Southern Italy (*G*) by the national equivalent figures (respectively *I*, *F*, *G*) . In symbols we have

$$IRIP = [(Is + Fs + G) / (I+F+G)]*100$$

[3] Special Aid Policy was definitively abolished in 1992.

As for the second - IRP (Index of Regional Policy) - it is a general index of regional policy obtained by dividing the sum of investment in public and semipublic enterprises in Southern Italy (*Is*), subsidised interest loans for the development of Southern Italy (*Fs*), investment grants in Southern Italy (*G*), public consumption in the South (Cm), and investment in public works in the South (*IPm*) by the national equivalent datum (respectively, *I*, *F, C*, and *IP*). Therefore, in symbols we have

$$IRP = [(Is + Fs + G + Cs + IPs) / (l + F + G + C + IP)].$$

Graph 3 below reports the evolution of both indices.

INSER GRAPH 3 ABOUT HERE

Regarding the evolution of regional disparities over the whole period the period 1952-1992, a strong reduction, concentrated in the period between 1953-1965, of disparities has been registered with the dispersion index (at provincial level) decreasing more than half over the sample considered (OECD, 2001); it is worth noting that this evidence is similar to that of other European regions during the 'Golden Age' of European convergence (Temple, 2001).

Beginning from the end of the 1990s a New phase of Regional Policy (NRP) has been settled principally as response to the dramatic crisis involving public finance and, more generally, political representation. The theoretical background of NRP is based on New Economic Geograghpy (NEG) with emphasis on growth enhancing environmental factors and on improvement of social capital as fundamental endogenous factors particularly missing in the South (Cannari, Magnani et al., 2009).

EU regional policy became pivotal in national state policy both in terms of financial effort and mutated procedures. As pointed out, between others, by Aiello and Pupo (2009), over the period 1996-2006 the total amount of Structural Funds received by Italy was more than 110 billion Euro. EU support was distributed coherently with their spatial redistributive aim as shown by Graph 4 below reporting that during the period 1996-2008 the South received a share of total transfers coming from EU ranging between 70% and 87% of total Italian transfers.

INSERT GRAPH 4 ABOUT HERE

More precisely, the South received funds equivalent to about 11% of the total investments and 40% of public investments substantially higher than the Centre-North datum, respectively 1.4% and 9.5%. In addition to the magnitude of spatial redistributive effort, these figures confirm also the strong (and persistent) dependency of Southern economy from policy measures (Aiello and Pupo, 2009). Coherently with the aim of this paper we focus on the debate regarding the effectiveness of policy measures in reducing regional disparities.

As noted by Calamai (2009) empirical evidence regarding the effectiveness of EU regional policy is mixed. Aggregate studies range from substantial policy ineffectiveness in enhancing growth highlighting their substantial role being limited to merely income-support measure (Boldrin and Canova, 2001; Rodrìguez-Pose and Fratesi 2004) to positive effect in enhancing the economic performance of European periphery (Leonardi, 2006) and significant support on income and employment growth in Objective 1 regions (Martin and Tyler, 2006). A similar mixed situation arise when Italy as single case-study is considered. Indeed, Loddo (2006) finds a positive and significant effect of Structural Funds on regional convergence during the 1994-2004 period even if with different shades, given that expenditure allocated by European Regional Development Fund (ERDF) "has medium term positive and significant returns while support to agriculture has short-term positive effects on growth which wane quickly" (Loddo, 2006, p.1). Furthermore, in her article, Loddo (2006, p.1) point out that her results "cast some doubt both on the (i) distributive efficiency of resources allocated by ESF and (ii) on the effectiveness of the intervention policies in support to education, Human capital and employment".

However, Aiello and Pupo (2009) in a more recent study, note that during a period of 25 years (form 1980 to 2007), "no variation is found in the regional order: the regions in which the GDP per-capita was, at the beginning of the period, below the national average occupy the same position at the end of the period (the correlation between the series of regional GDP per-capita at the beginning and the end of the period is 0.95)" (Aiello and Pupo, 2009, p.1). Moreover, with regard to the magnitude of discrepancy they note also that "in 2006-2007 the income of an inhabitant of the richest region (Valley d'Aosta) is, on average, 2.6 times higher than that of an inhabitant of the poorest region (Calabria)" (Aiello and Pupo, 2009, p.1).

Focusing the attention on the impact of EU regional policy, their empirical analysis, taking into account the non-observable regional heterogeneity, the small-sample bias and the possible endogeneity of Structural Funds, achieve the conclusion that "it must be noted that the divide between the regions has not changed over time and, therefore, even if the increase of the infrastructure endowment has contributed to determine a greater impact of the spending in the Mezzogiorno, it is evident that the European cohesion policy has not fully reached the set objective, that is to reduce the disparities inside each member state" (Aiello and Pupo, 2009, p.13). More precisely, they find a positive impact of EU funds (0.081 or 0.09 according to different estimation technique, LSDVC or GMM-SYS respectively), but the magnitude of their estimates implies that, for example, a 10% increase in per-capita EU spending, on average, results in an increase of the GDP per-capita of about 0.9% or 0.81% according to estimator applied. On this point the author note that Loddo (2006)'s higher estimate of 1.11 can depend on the fact that, in comparison to the Loddo (2006) study, the estimators used in their work control for the small size of the sample, for the endogenous nature of the regressors and, finally, for the business-cycle effects (Aiello and Pupo, 2009, p. 10). Therefore the authors conclude that

> It is reasonable to think […] that the increase of the average rate of growth of the percapita income in the South of Italy is simply determined by the European transfers that have mostly interested the southern area of the country. Therefore, what could appear at first as a positive signal for the solution of the problem of the dependence of the southern economy on external resources is nothing more than the result of that same dependence […]. (Aiello and Pupo, 2009, p. 13).

As possible explanation of this substantial ineffectiveness of regional policy in reducing North-South divide could be found in Milio (2007) both in terms of implementation rate (Italian regions, even if with significant exception such as Abruzzo, Molise, and Basilicata, had the lowest implementation rate over the 1989-1993 and the 1994-1999 period) and of broader administrative capacity and criminal pervasion in public activities (Cannari, Magnani et al., 2009). Indeed, at least until 1992, the southern regions beneficiated of a regional policy characterised by a generalized distribution of expenditures over southern Italy rather than in target areas with no long-term planning and with deficient monitoring or evaluation procedures (Trigilia, 1992; Milio, 2007)

To the case at hand, it is worth stressing that there are strong arguments based both on strictly empirical – regarding the magnitude of their impact (Loddo, 2006; Aiello and Pupo, 2009) - and on political and theoretical grounds (Milio, 2007) to cast considerable doubts that (EU) regional policy, through the positive interaction with the devolution process, over the period under consideration, achieved the persistent reducing effect on regional disparities reported in GRAPH 1.

An alternative measure of regional redistributive policy, not yet considered in previous studies regarding the Italian, case has been proposed by Pike, Rodrìguez-Pose et al. (2010). This general measure of policy consists of the difference between the Gini index calculated on primary household income per head – i.e. before direct state intervention on household income – and the same index calculated on disposable income per head. Therefore, the latter takes into account direct policy intervention by means of both positive elements such as social benefits received and other current transfers received (total secondary resources) and negative elements such as current taxes on income and wealth (e.g. income tax, council tax), social contributions paid and other current transfers paid (total secondary uses). Therefore, Policy, by considering policy measures other than taxes, build on the Reynolds and Smolensky (1977) index usually calculated to measure the progressiveness of tax systems. The evolution of both measures (*Gini*, *Policy*) is shown in Graph 5 below.

INSERT GRAPH 5 ABOUT HERE

The Graph shows that, after 2002, an increase in the measure of policy is rather constantly (with the exception of 2004) associated with a reduction of regional disparities. This empirical evidence seems to confirm the effectiveness of spatial redistributive policy in reducing regional disparities. However, the Spearman correlation index is negative (-0.5245) and the hypothesis that the two measures are independent cannot be rejected at 5% confidence level (the relative p-value is equal to 0.08).

Therefore, empirical analysis, considering both the specific contribution of EU funds and the broader spatial redistributive policy, rises serious doubts in order to attribute

any substantial disparities-reducing effect to regional policy over the period under consideration.

3. Evolution of other relevant factors

In order to further explore the link between spatial performance and spatial disparities in Italy, building on Cannari, Magnani et al. (2009), in what follows we consider other more specific factors able to influence regional (performance and) disparities.

The bulk of these measures is taken from ISTAT[4] and belong to the "Territorial Database for Development policy (*Banca dati territoriale per le politiche di sviluppo*) and contains data collected specifically to support policy monitoring and evaluation inside the Community Support Framework (*Quadro Comunitario di Sostegno*). The database is composed by about 160 regional indices divided into *contest indicators* (*indicatori di contest chiave)*, and "break variables" (*variabili di rottura*). The latter set consists of 15 selected variables selected to evaluate ex-ante the impact of policy actions due to their importance in terms of economic externalities to economic development. Therefore, this dataset represent a powerful instrument in order to search for a structural change in southern regions, stimulated by the devolutionary trend, able to improve their economic performance and, in turn, to reduce regional disparities as theoretically predicted, with particular regard to the Italian case, by Calamai (2009)[5].

We consider first a general indicator of social capital, political accountability and participation which is represented by turnout for the 2005 and 2010 regional elections considering 13 regions under *Statuto Ordinario* rule. The rationale for considering these regions is twofold. First, because these kind of regions are potentially more involved in the increased autonomy arising from the devolutionary process (especially under the 2001 Constitutional reform[6]) than regions already enjoying a higher level of autonomy (*Statuto Speciale*). Second, because in these regions elections hold in the same days[7] so that, all external factors able to influence electoral participation, included economic cycle (Aguilar and Pacek, 2000) could be considered equal, making possible the comparison *between* regions.

According to devolutionary rhetoric about participation we would expect an increase in electoral participation. Indeed, in Scully, Jones et al. (2004) words

[4] For further information see http://www.istat.it/ambiente/contesto/infoterr/azioneB.html.
[5] See also Figure 2.
[6] Cost. L. 2001, n. 3 "*Modifiche al titolo V della parte seconda della Costituzione*". *Gazzetta Ufficiale* n. 248, 24th October 2001.
[7] Except for Basilicata in 2005 that had election between the 17th and the 18th April instead of 3rd and 4th April.

By bringing government 'closer to the people' [...] it is suggested that devolution can [...] generate a renewed sense of engagement and participation in the political process in the territories where it is established (Scully, Jones et al., 2004, p. 519-20).

Furthermore, as already noted, Calamai (2009, p.1146), with particular regard to the Italian case, point out that "one of the major arguments pointing to the economic benefits of devolution equates proximity to the electorate with the enhanced accountability of local governments".

Graph 6 reports the participation rate for 13 regions under *Statuto Ordinario* rule relative bot to the 2005 and 2010 regional elections.

INSERT GRAPH 6 ABOUT HERE

However, as shown in the Graph, between 2005 and 2010 in all regions considered the share of voters declined. The highest reduction has been registered by Lazio (the difference between 2005 and 2010 perceptual datum is 11.70), while the lowest has been registered in Basilicata (where the difference is 4.38). On average the difference between the two perceptual was 7.70. Therefore, it seems that devolution, rather than stimulate participation given to 'closer' citizens the possibility to 'have their say' using their *voice* (Hirschman, 1985) option, was accompanied by a general signal of "of public alienation from, and declining trust in, politicians and the political system" (Scully, Jones et al., 2004, p. 519) and, especially in the South, this could create a self-enhancing vicious cycle since, as a response to this alienation, political institutions could become "less 'representative' of the population, and in turn might incline policy makers to neglect the interests of social groups among whom electoral participation is lowest" (Scully, Jones et al., 2004, p.519). This circumstance, in turn, could have negative overall effects on social capital and social cohesion.

Regardless of its link with participation, the issue of social cohesion is addressed in Graph 7 below reporting the evolution of the ISTAT indicator 'Legality and Social Cohesion' (index "t.09" - *Condizioni di legalità e coesione sociale*) measured as violent crime per 10,000 inhabitants.

INSERT GRAPH 7 ABOUT HERE

Graph 7 shows that, if any, only a negative effect of devolution on legality and social cohesion could be traced over the period considered. Indeed, we observe an increase on violent crimes –i.e. a decrease in legality and social cohesion – involving all macro-areas considered. Furthermore, in terms of North-South divide the Graph

shows that, since 2000, the South part of the country experienced a substantial increase of violent crimes passing from 14.8 (per inhabitant) in 2000 to 25,3 in 2007 with an increase of 10.5, while, for example, the North-East datum passed from 10.7 in 2000 to 17.2 in 2007 experiencing not only lower absolute values but also a lower increase over time (6.5).

The gap in legality is further confirmed by work conditions. Indeed, considering the indices of 'Irregular Work' (index "t.08" - *Capacità di offrire lavoro regolare*), South and Islands macroareas shows a share of irregular workers constantly higher (about 2 times) of those of the rest of the country.

INSERT GRAPH 8 ABOUT HERE

It is worth noting that both the 'Legality' and the 'Irregular work' indices represent *indirect* measure of socio-economic conditions. Going further with the analysis of economic performance and considering two *direct* indices of economic performance represented by worker productivity in manufacturing industry ("index IV-13 bis" - *Produttività del lavoro nell'industria manifatturiera*) and and innnovationa ability (index 'IV-19 bis' - *Intensità brevettuale*) which represent two keys factor in economic performance, the picture appears reversed with North West constantly registering highest values and South macro-area at the bottom of the scale. More precisely, for the former, should be noted the relatively better performance of Islands (comparable to those of other macro-areas of the country) with respect to the South which seems to follow its own (lower) trend.

INSERT GRAPH 9 ABOUT HERE

However, as for the latter, quite impressing, the Graph reproduce the geographical order of macro-areas with both Northern areas registering higher values than the Central one and, in turn, the Centre performing better than South and Islands. This hold for the whole period considered.

INSERT GRAPH 10 ABOUT HERE

In addition to innovation and the strictly manufacture productivity variable, considering a completely different kind of 'production' activity the variable 'Tourism attractiveness' (index 'R3' - Capacità di attrazione dei consumi turistici).

Clearly, this variable depends not only on the artistic and cultural 'heritage' of each macro-areas, but, to greater extent, to the valorisation of the inherited touristic patrimony and is linked, at least, with other socio-economic variables considered above. Put differenlty, as pointed out by Cellini (2011, p. 452), "it is the valorization of the endowment that plays the major role in attracting tourism flows" (on this point see also Bille and Schulze, 2008; Bonet, 2003; Cooke and Lazzaretti, 2008). However, on the meaning of 'valorisation', it is worth noting that this not simply coincide with *public spending for tourism*. Indeed, with respect to the Italian regions, Cellini and Torrisi (2009), even finding find that the effectiveness of public spending of public spending for tourism on tourism attraction appears to be really weak, conclude noting that "that tourism is a very large and composite basket of goods and services, and the focus on a subset of factors could be misleading".

INSERT GRAPH 11 ABOUT HERE

Even in this case the trend registered over the sample considered does not allow to argue that any structural change involved the ability of Southern regions to attract touristic presences. Indeed, except for North West (belonging to the 'lower-attractiveness' group), the Graph reproduces a ranking of macro-areas substantially matching the North-South division of the Country demonstrating the ineffectiveness of Southern regions to achieve a development based on tourism economy.

Finally, the same (reversed) geographical order can be found considering an *indirect* measure of economic performance, that is, considering a 'break variable' (*variabile di rottura*) for the economic development, consisting in 'Economic Dependency' (index 'R2b' - *Grado di indipendenza economica*). Indeed, South and Island registered, over the whole period considered, considerably higher values of economic dependency than the rest of Italy. More precisely, while *all* other maro-areas registered *negative* values of economic dependency - meaning that the amount of their importation (from 'the rest of the world' and from other regions not belonging to each macro-area) is *lesser* than the correspondent amount of exportation – South and Islands reported constantly *positive* and increasing values (the value in 1995 was 17.8% and 22.5%,while the value in 2007 was 20.3% and 24.8%, respectively).

INSERT GRAPH 12 ABOUT HERE

Therefore, the brief analysis reported in this section, confirms that "almost all weaknesses of Italian economy are mostly revealed in the South" (Cannari, Magnani et al., 2009, p. 673, our translation). Indeed, also Cannari, Magnani et al. (2011)'s analysis confirms a performance of Southern regions "markedly unsatisfactory"

(Cannari, Magnani et al. 2009, p.727, our translation). To the case at hand, this negative evolution over time of important Southern socio-economic factors makes it difficult to link the reduction of regional disparities experienced over the period under consideration to (potential) beneficial effects of devolution. By contrast, the link appears rather spurious and highly questionable leaving more open questions than at the beginning of the analysis.

4. What could cause the reduction of regional disparities?

The analysis performed in previous sections essentially demonstrated that no single variable taken under consideration registered an historical evolution able to empirically explain – through the theoretical mechanism reported in Figure 2 - the persistent reduction in regional disparities registered over the ten-year period from 1996 to 2006. Therefore, until this point, the analysis – rather than supporting the Calamai (2009)'s argument about the desirable opposite relation between regional disparities and devolution - leaves us more worries about the possibility of reaching a reliable conclusion than it started with.

Given that the virtuous relationship between decentralisation and other variables cannot be confirmed in light of the empirical analysis developed above, the first conclusion that could be drawn is based on the argument that the reduction of disparities, rather than representing the result of endogenous factors fostering economic performance, is primarily driven by the strong redistributive effort operated by the state.

This argument is confirmed by Graph 13 below reporting the evolution of primary and disposable household income (as share of Italy total primary and disposable household income, respectively) according to macro-area over the period 1995-2009.

INSERT GRAPH 13 ABOUT HERE

Indeed, from Graph 13 it is evident that the Southern part of the state is the unique one with a share of disposable income (i.e. after state intervention) substantially higher than primary income (i.e. before state intervention). Furthermore, it is worth stressing that (i) this circumstance is strongly persistent over time and that (ii) despite this strong *between* (regions) redistributive effort and the observed reduction of regional disparities over time, as noted also by Torrisi (2010), the *within* relative poverty is substantially stable over time, with the South registering a share of relative poverty (23.38% on average, ranging from 21,6 in 2003 to 25 in 2004) more than two times those of other macro-area of the country with the North ranging from 4.5% (in 2005) to 6% (in 1997) and the Centre ranging from 5.8% (in 2003) to 9.7%

(in 2000). Graphs 14 below reports the complete evolution of macro-areas' relative poverty for the period from 1997 to 2007.

INSERT GRAPH 14 ABOUT HERE

Therefore, Graph 14 confirms that the reduction of regional disparities observed over the period under investigation has not been accompanied with a correspondent reduction of within disparities (rather relative poverty) and this circumstance in itself is another factor that casts doubts on the link between devolution and disparities. Indeed, one of key argument in favour of devolution is based on better targeted policies due to an higher information set available at local level.

To the case at hand, considering redistribution as a *public good* (Pauly, 1973) and adopting the (Hochman and Rodgers (1969)'s approach based on interdependence of utilities function between rich and poor, redistributive effort theoretically could also be more *Pareto-efficient* in a decentralised setting. Nevertheless, our empirical analysis confirms that the devolutionary process, in all Italian macro-areas considered, was unable to produce any significant effect on this regard. Therefore, our empirical analysis confirms that, regardless of the underlying dynamic, devolution - if any – had a limited effect in reducing between disparities without changing the structure of relative within poverty. Put differently, while the issue of the focus on analysis on income distribution or in poverty is still debated in the political and academic discourse (Sutcliffe 2004), there is empirical evidence that the devolutionary process in Italy has been unable to stimulate a "pro-poor growth" (Sutcliffe, 2004, p.19) therefore contrasting with argument generally claiming for a reduction of *poverty not inequality* (Feldstein, 1999) in order to increase Pareto-efficiency.

Hence, it is reasonable to argue that overall reduction of regional disparities arising from higher economic growth in the South of Italy is simply due to European transfers (Aiello and Pupo, 2009). Furthermore, the rise in percapita income was neither accompanied with any significant change in critical variables able to (explain and) stimulate self-enhancing endogenous development nor with any reduction of regional poverty so that the positive signal consisting in the reduction of regional disparities could be essentially attributed to external factors, mainly income support measures, representing, rather than economic development, indices of persistent high economic dependency.

In addition to different outcome of income support measures between South and the rest of the country – operating at the *numerator* level - closely considering the dynamic of population, which represents the *denominato*r used to *normalise* income measures, it is worth noting that, as shown in Graph 15 below, Southern population constantly decreased over the period ranging from 1996 (20667.8 thousands of

inhabitants) to 2002 (20527.7 thousands of inhabitants) while Centre-North constantly increased over the whole period 1995-2009 passing from 36176.6 thousands to 39369.8 thousands, respectively. More precisely, according to the SVIMEZ Report (2009) between 1997 and 2008 the *Mezzogiorno* registered an outward flow of about 700 thousands inhabitants; Only in 2008 the internal migration in favour of Centre-Northern regions amounted to 122 thousand inhabitants the 87% of which coming from Campania (25 thousands), Puglia (12,2 thousands), and Sicilia (11,6 thousands).

INSERT GRAPH 15 ABOUT HERE

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In principle, this internal migration is not a negative *per se*. Indeed, from a strictly economic point of view, according to a neoclassical paradigm, input factors mobility is a key factor to achieve higher economic performance. Nevertheless, from the devolutionary perspective, once considered also that the South-North flow is manly composed by high-skill worker (SVIMEZ, 2009), this circumstance is rather in contrast with the argument based on *realising every place's potential*[8], instead, it could be interpreted, once more, as a sort of *exit* (Hirschman 1985) option also in response to low performance of Southern local governments in stimulating economic development. However, undoubtedly the internal dynamic of population, in spite of the fact that it has been driven by the relatively low economic performance of Southern regions generating high unemployment rates, quite paradoxically, amplified the downward trend of *percapita* regional disparities. For example, in 2008, the share of Southern GDP on National GDP is about 24% - substantially unchanged since 1951 - while the percapita value of the Southern share in the Centre-North GDP (30.380 euros and 17.482 euros, respectively) is about 60% (SVIMEZ, 2008).

This aspect is further investigated comparing the cumulative GDP growth between 1995 and 2007 according to five different macro-areas. Graph 16(a), reporting percapita values, show that both the North-East and the North-West macro-area registered especially after 2000 a (cumulative) growth rate lower than the rest of the country. Moreover, the South, beginning from 1996, shows the highest economic performance between the macro-areas considered. Nonetheless, once considered, in Graph 16(b), absolute values, the picture is quite different. Indeed, in this case, even if the North-West confirms a relative low cumulative growth, the North-East datum is higher than national growth for the whole period considered (even if both in 1998 and 2001 the macro-areas registered cumulative growth substantially equal to the national one). Islands, in contrast to percapita values, show a downward trend since 1998 joined by Southern macro-area since 2002, exactly one year later the

[8] The expression is mutated from the government document "Local growth: realising every place's potential" presented to the UK parliament by the Secretary of State for Business, Innovation & Skills in October 2010 (available online at http://www.official-documents.gov.uk/).

devolutionary Constitutional reform of 2001. Only the Centre seems to confirm the relative good economic performance according to both measures.

INSERT GRAPH 16 ABOUT HERE

Therefore, not considering the dynamic of population and its effects on regional – percapita – income, the 'convergence' process shows different magnitude and trends. Indeed, Gini index on absolute values – reported in Graph 17 below - range between maximum and minimum 0.509 (in 1995) and 0.504 (in 2002) substantially higher than the correspondent extremes registered by percapita figures: 0.135 and 0.113, in 1995 and 2007 respectively. Put differently, a max-min difference in Gini index (absolute values) of only 0,005 results, due to population dynamic, in a difference (0,02) four times higher in percapita values. Moreover, the continuous downward trend of regional disparities registered in the case of percapita values, is not confirmed by absolute values: although a reduction of disparities in absolute values arose during the period 1995-2001, beginning from 2002 (once more, just a year after the devolutionist Constitutional reform in 2001) regional disparities started back to increase.

INSERT GRAPH 17 ABOUT HERE

Certainly this dynamic of regional disparities, from a different angle, contributes to challenge the above mentioned argument in favour of positive effects of devolution in realising every place's potential and, to the case at hand, casts considerable doubts about the overall disparities-reducing effects of devolution across Italian regions.

As further analysis of potential beneficial effects of devolution on spatial disparities we consider also the issue of polarisation. Indeed, given also the strong spatial autocorrelation of measure of income in Italy, expression of the North-South divide, from Esteban and Ray (1994), it is well known that income inequality measures could give a picture quite different from polarisation measures. More precisely, it could be the case that (at least) some Southern regions, stimulated also by the devolutionary trend, activate their own economic dynamic behaving, in terms of Esteban and Ray (1994), less as a single "cluster" reducing overall polarisation. At this end we use the Generalised Esteban, Gardìn and Ray (2007) (EGR) polarisation index

$$P^{EGR}(f,\alpha,\rho^*,\beta)=\frac{1}{2}\left(\sum_{j=1}^{m}\sum_{K=1}^{m}p_j^{1+\alpha}p_k\left|\mu'_j-\mu'_k\right|-\beta\left(G(f)-G(\rho^*)\right)\right) \qquad \text{eq.(1)}$$

where μ'_j and p_j represent respectively the (corrected) average income and the numerical weight of group j; $\alpha \in [1,1.6]$ is the parameter that captures the degree of sensitivity of our measure of polarisation, and $\beta \geq 0$ is the parameter used to express the weight assigned to the error term $\left(G(f)-G(\rho^*)\right)$ in determining group composition (for further details readers are addressed also to Esteban and Ray (1994) and to Duro (2005). It is well known that this measure involves the division of the original population into a number of significant homogeneous groups (*within-homogeneity* condition) to obtain high *heterogeneity between* groups. Adopting the methodology proposed by Aghevli and Mehran (1981) and Davies and Shorrocks (1989) both the 2 and 3 groups case have been considered. Results are reported in Table 1.

INSERT TABLE 1 ABOUT HERE

In computing this index, contrarily to expectations based on pro-devolution argument, both for the partition into 2 and into 3 groups, over the whole period considered (1995-2007) Southern regions (Abruzzi, Basilicata, Calabria, Campania, Molise, Puglia, Sardinia, and Sicilia) belong to the lower-income group (or cluster) confirming the circumstance that their income dynamic follows a single trend over time. Instead, are Northern regions that are becoming relatively poorer. This phenomenon is particularly evident, for example, in 2001 in which, considering 3 income groups[9], 3 regions (Lombardy, Piedmont, Valle d'Aosta, and Veneto) and the *Provincia Autonoma* of Trento, register a shift from the *hight income* group to the *medium income* group with a consequent reduction of polarisation passing from 0.023076 (in the previous year) to 0.021995. Table 2 reports the evolution of the subdivision of the whole set of regions into the 3 income groups following the Davies and Shorrocks (1989) algorithm. Namely, low income (group 1), medium income (group 2), and high income (group 3) according to upper and lower bounds reported, for each year, in Table 1.

INSERT TABLE 2 ABOUT HERE

[9] The income groups are defined using the Davies and Shorrocks (1989) algorithm. As reported in Table 1 for 2001 they are defined as follows. Low income between 9937.500 and 14266.739; Medium income between 14266.739 and 18688.316; High income between 18688.316 and 21008.000. Data are expressed in Purchasing Power Standard based on final consumption per inhabitant .

Graph 18 below reports the evolution of the EGR polarisation index (see column 7 in Table 1) over the period considered.

INSERT GRAPH 18 ABOUT HERE

Graph 18 shows a rather constant reduction, although modest in magnitude[10], of polarisation over the period considered. Therefore, in terms of North-South divide, this evidence jointly considered with argument developed above about the relatively lower performance of Northern regions, the polarisation analysis seems to confirm that, rather than filling the gap, regions (or *members*) belonging to the Southern cluster are constantly "similar" over time. However, Northern regions, registering, as a whole, a relatively lower level of household income, are becoming less "dissimilar" from Southern ones, reducing the overall polarisation.

To summarise, the overall evolution of regional disparities is far from showing a desirable opposite link with the devolutionary process. Indeed, on the empirical side, the reduction registered in percapita values is hardly linked with theoretical arguments proposing devolution as a socio-economic stimulating factor, and, the reduction of regional disparities itself, essentially driven by relative low performance of (richer) Northern regions, (i) appears to be ineffective in reducing within disparities, (ii) not supported by endogenous economic performance, and (iii) rather limited both in time and magnitude.

5. Conclusion

This paper critically considered the link between regional disparities and devolution in Italy. The analysis contributes to the existent literature empirically considering the historical path of a (sub-)set of socio-economic factors theoretically involved in a self-enforcing virtuous cycle including devolution as an initiating factors. In the Italian contest this kind of analysis unavoidably involve the issue of North-South divide.

Contrarily to theoretical argument and previous Italian case-study, going further the consideration of high debated measure of fiscal devolution, our analysis shows that evolution of pivotal factors to regional development in the South is not able to explain the reduction of regional disparities in percapita GDHI registered over the period 1995-2007. Moreover, the reduction of between spatial disparities over this period has not been accompanied by any substantial reduction of South's within poverty.

[10] The difference between the initial (0,02499) and final value (0,021625) considered is equal to 0,003365.

Our interpretation of these findings, augmented with a polarization analysis, is that the process has been driven by the dynamic of population, generally ameliorating Southern *percapita* values, and by relative low performance of (richer) Northern regions. Clearly, this not implies that devolution has no positive effect of spatial economic performance and regional disparities; however these effects have to be further investigated and, moreover, might require more time in order to be effective in improving socio-economic factors and overall regional performance, especially in the South.

Acknowledgment

This work was part of the research programme of the independent UK Spatial Economics Research Centre funded by the Economic and Social Research Council (ESRC), Department for Business, Enterprise and Regulatory Reform (BERR), the Department for Communities and Local Government (CLG), and the Welsh Assembly Government. The support of the funders is acknowledged. The views expressed are those of the authors and do not represent the views of the funders.

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Table 1 – Polarisation analysis

Year	n=2	Gini (f)	Gini (rho)	Average income		n=3	Gini (f)	Gini (rho)	Average Income		
				Group 1	Group 2				Group 1	Group 2	Group 3
1995	0.041438 (18.75%)	0.151015	0.122699	8930.825 [7863.700; 13173.977]	15785.146 [13173.977; 18047.500]	0.024990	0.151015	0.139861	8930.825 [7863.700; 11618.193]	14689.472 [11618.193; 15785.146]	17063.434 [15785.146; 18047.500]
1996	0.040531 (19.28%)	0.148685	0.120025	9482.888 [8174.200; 13844.980]	16529.346 [13844.980; 19021.500]	0.024432 (8.03%)	0.148685	0.136750	9482.888 [8174.200; 12247.566]	15407.200 [12247.566; 16529.346]	17838.516 [16529346; 19021.500]
1997	0.039388 (19.00%)	0.143997	0.116634	9956.813 [8651.700; 14350.366]	17054.092 [14350.366; 19288.699]	0.024050 (8.01%)	0.143997	0.132469	9956.813 [8651.700; 12447.871]	15769.283 [12447.871; 17054.092]	18155.357 [17054.092; 19288.699]
1998	0.038757 (19.41%)	0.142413	0.114777	9978.963 [8673.500; 14281.967]	16929.969 [14281.967; 19171.801]	0.023751 (8.10%)	0.142413	0.130876	9978.963 [8673.500; 12400.821]	15629.967 [12400.821; 16929.969]	18044.258 [16929.969; 19171.801]
1999	0.038121 (18.86%)	0.139111	0.112879	10352.7 [9081.800; 14712.071]	17394.723 [14712.071; 19656.400]	0.023289 (7.79%)	0.139111	0.128277	10352.763 [9081.800; 12821.836]	16113.934 [12821.836; 17394.723]	18492.543 [17394.723; 19656.400]
2000	0.037856 (19.08%)	0.138523	0.112099	10910.838 [9381.900; 15460.113]	18259.668 [15460.113; 20558.699]	0.023076 (8.25%)	0.138523	0.127097	10910.838 [9381.900; 13498.472]	16948.650 [13498.472; 18259.668]	19383.398 [18259.668; 20558.699]
2001	0.036675 (19.11%)	0.134257	0.108604	11366.475 [9937.500; 15899.043]	18688.316 [15899.043; 21008.000]	0.021995 (8.41%)	0.134257	0.122971	11366.475 [9937.500; 14266.739]	17581.328 [14266.739; 18688.316]	19979.801 [18688.316; 21008.000]
2002	0.036090 (19.49%)	0.135059	0.108736	11806.312 [9906.100; 15820.162]	18830.551 [15820.162; 21095.000]	0.022567 (8.66%)	0.135059	0.123357	11315.938 [9906.100; 14454.362]	17592.787 [14454.362; 18591.992]	20190.721 [18591.992; 21095.000]
2003	0.035826 (18.18%)	0.131879	0.107909	11877.578 [10154.300; 15874.591]	18872.350 [15874.591; 20764.699]	0.021902 (8.59%)	0.131879	0.120552	11408.750 [10154.300; 13985.714]	17421.666 [13985.714; 18622.799]	19652.342 [18622.799; 20764.699]
2004	0.036926 (18.74%)	0.134550	0.109339	11435.675 [10273.100; 16039.144]	18872.047 [16039.144; 21473.699]	0.022104 (8.20%)	0.134550	0.123511	11435.675 [10273.100; 14391.906]	17770.457 [14391.906; 18872.045]	20157.232 [18872.045; 21473.699]
2005	0.035482 (18.49%)	0.131124	0.106882	12307.789 [10564.700; 16397.061]	19464.016 [16397.061; 21686.600]	0.021871 (8.18%)	0.131124	0.120400	11803.763 [10564.700; 14440.071]	17955.150 [14440.071; 19223.707]	20311.043 [19223.707; 21686.600]
2006	0.034965 (18.58%)	0.129353	0.105324	12879.122 [11090.600; 17075.549]	20222.867 [17075.549; 22488.100]	0.021213 (8.34%)	0.129353	0.118565	12376.813 [11090.600; 15388.460]	18830.342 [15388.460; 19967.076]	21293.266 [19967.076; 22488.100]
2007	0.035281 (18.50%)	0.130394	0.106275	13402.478 [11420.900; 17821.834]	21136.350 [17821.834; 23402.801]	0.021625 (8.70%)	0.130394	0.119054	12878.287 [11420.900; 15722.835]	19515.566 [15722.835; 20864.016]	22019.828 [20864.016; 23402.801]

EGR index of GDHI (percapita) polarisation (δ=1.6, λ= 1). Groups obtained using the Davies and Shorrocks (1989) algorithm .

Source: authors' elaboration on data from Eurostat.

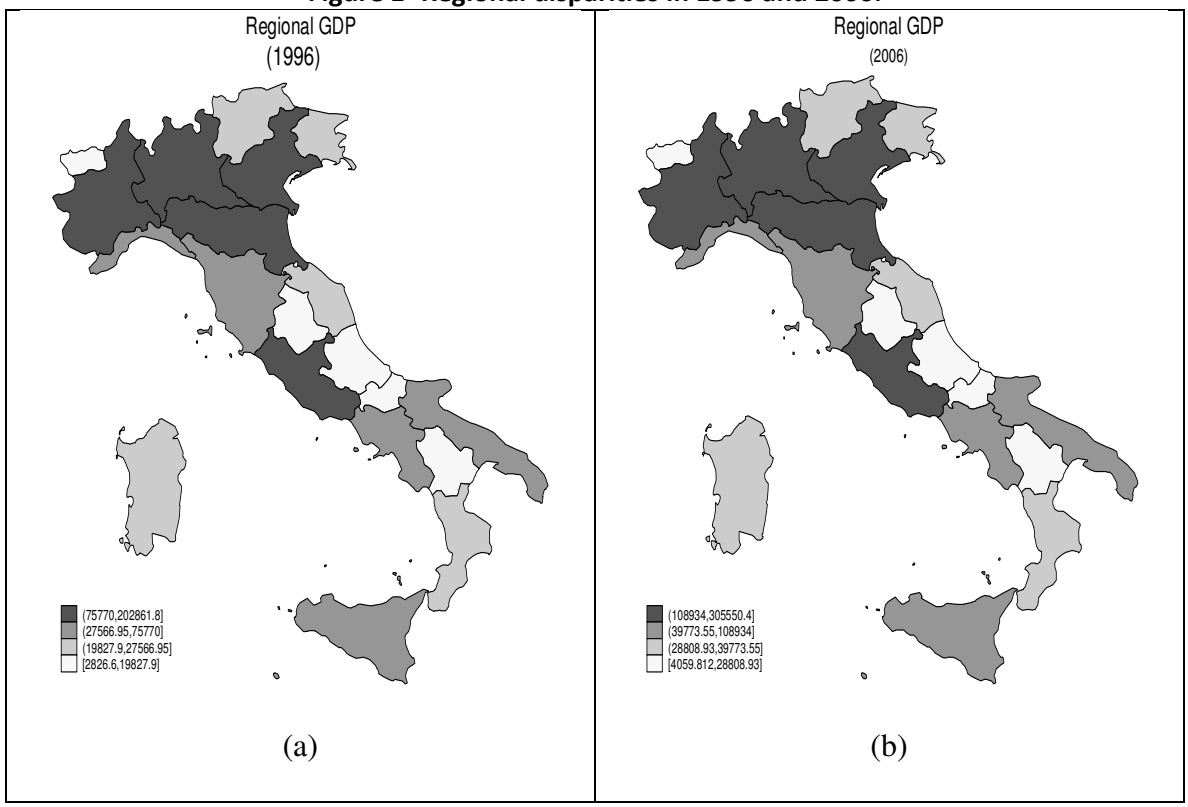
Table 2 – Classification of regions according to their income

Region	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Calabria	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Sicilia	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Campania	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Puglia	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Basilicata	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Sardinia	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Molise	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Abruzzi	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Umbria	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Marche	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Liguria	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Toscana	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Friuli	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	High
Lazio	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	High	Medium	Medium
Veneto	Medium	Medium	High	High	High	High	Medium	Medium	High	High	High	High	High
Piedmont	High	High	High	High	High	High	Medium	Medium	High	High	High	High	High
Valle d'Aosta	High	High	High	High	High	High	Medium	High	High	High	High	High	High
PA Trento	High	High	High	High	High	High	Medium	High	High	Medium	Medium	Medium	Medium
Lombardy	High	High	High	High	High	High	Medium	High	High	High	High	High	High
Emilia Romagna	High	High	High	High	High	High	High	High	High	High	High	High	High
PA Bolzano	High	High	High	High	High	High	High	High	High	High	High	High	High

The income groups (low income, medium income, and high income) are defined using the using 3-groups bounds reported in Table 1. Data are expressed in Purchasing Power Standard based on final consumption per inhabitant.

Source: authors' elaboration on data from Eurostat.

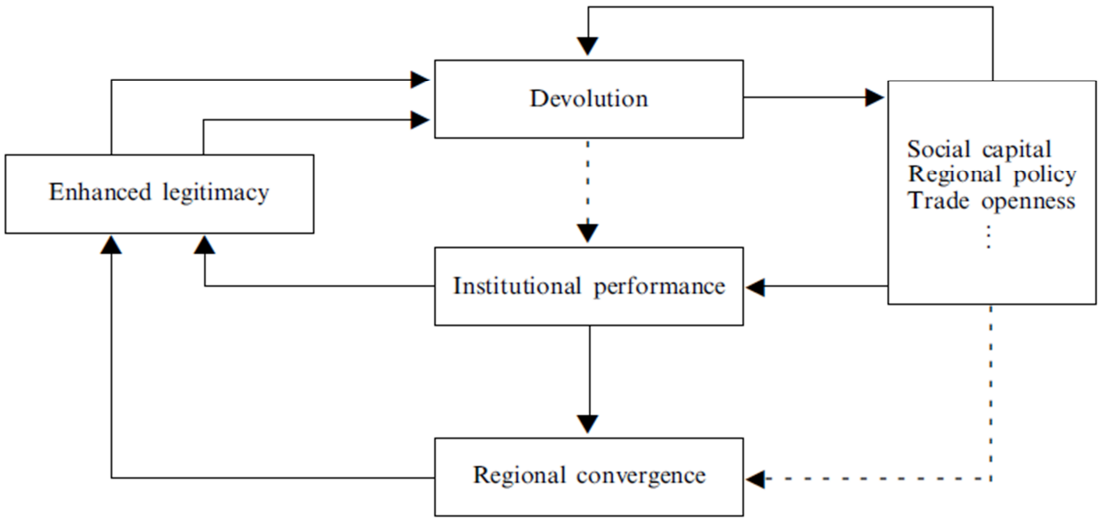
Figure 1- Regional disparities in 1996 and 2006.



Percapita values.

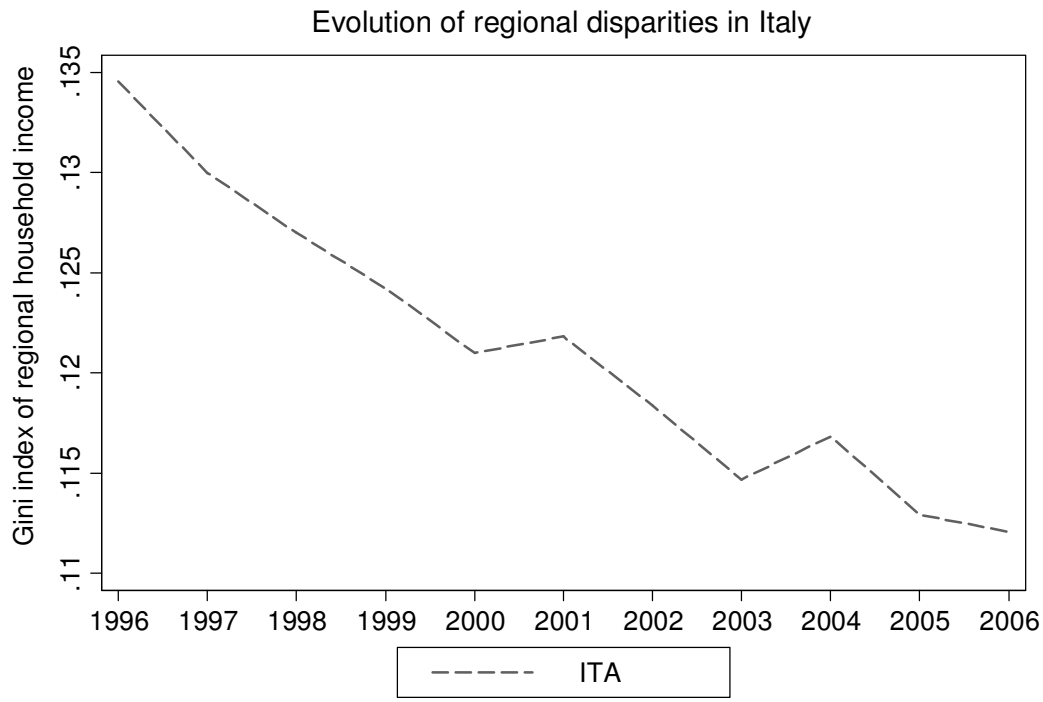
Source: authors' elaboration on Eurostat (2010)

Figure 2 - The link between devolution and regional disparities in Italy



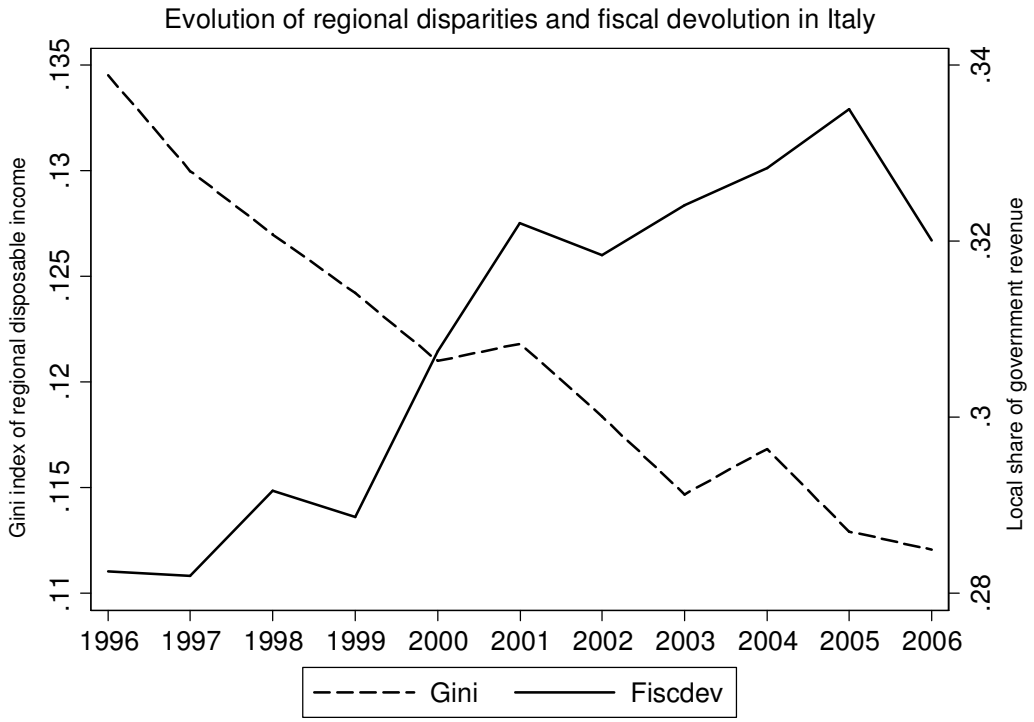
Source: Calamai (2009, p. 1146).

Graph 1 – Evolution of regional disparities



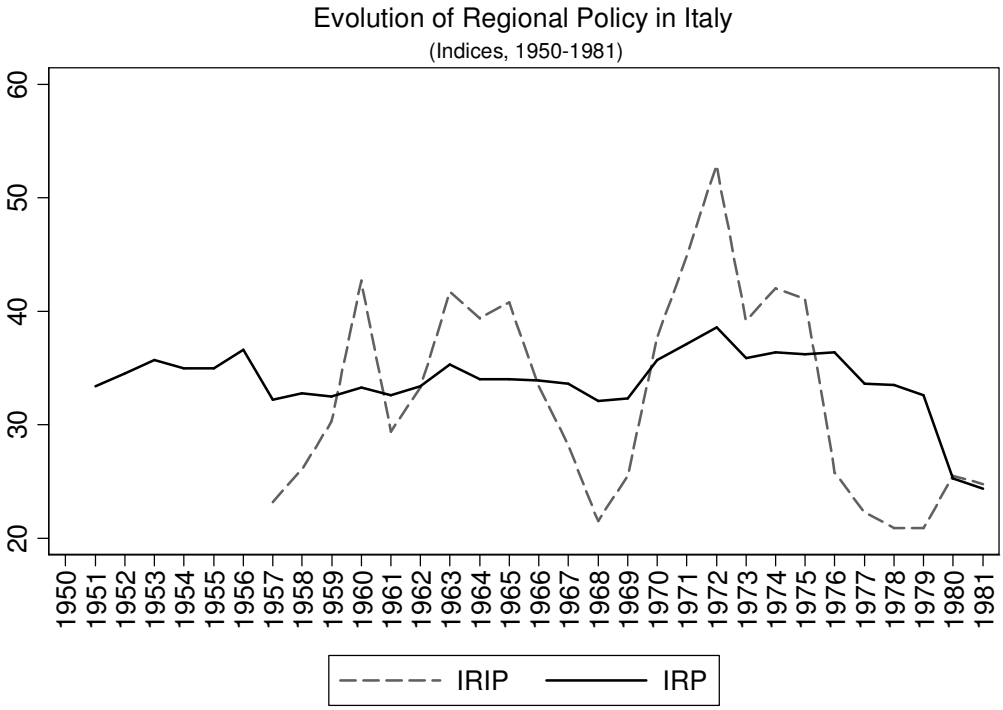
Gini index: Gini index of regional Gross Disposable Household Income per head (GDHI)
Source: authors' elaboration on Eurostat (2010)

Graph 2 – Evolution of regional disparities and fiscal devolution in Italy



Fiscal Devolution: share of local revenue on total government revenue; Gini index: Gini index of regional Gross Disposable Household Income per head (GDHI).
Source: authors' elaboration on Eurostat (2010)

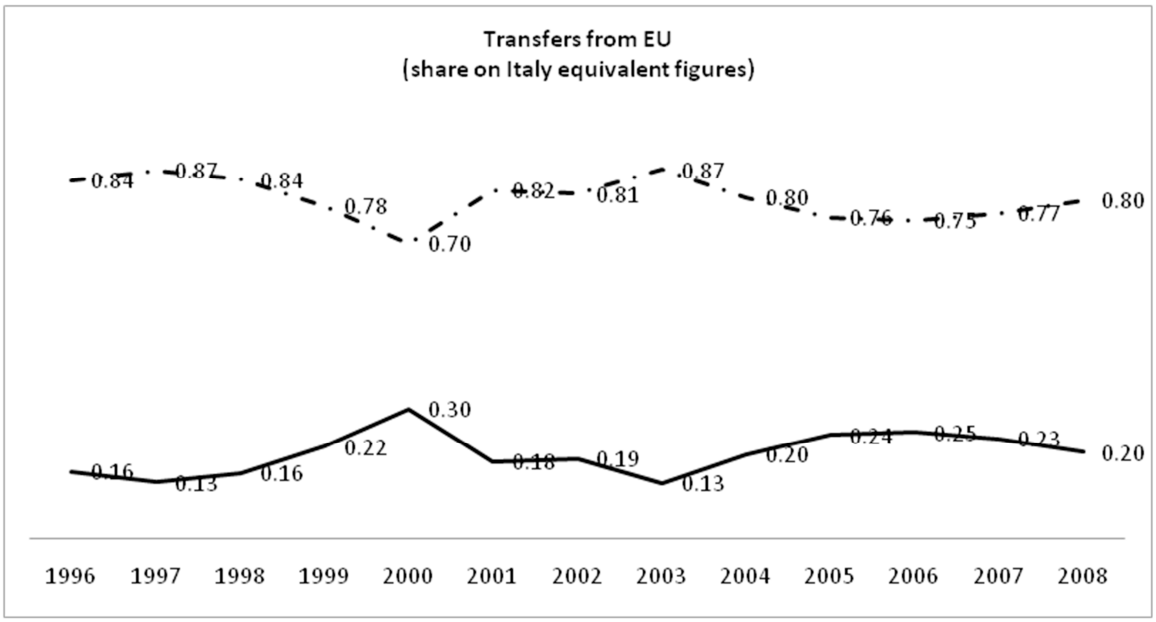
Graph 3- Evolution of regional policy in Italy between 1950 and 1981



Note: **IRIP (Index of Regional Industrial Policy in relation to national industrial policy)** is obtained by dividing the sum of investment in public and semipublic enterprises in Southern Italy (*Is*), subsidised interest loans for the development of Southern Italy (*Fs*) and investment grants in Southern Italy (G) by the national equivalent datum. In symbols IRIP = [(*Is* + *Fs* + *G*)/(*I*+*F*+*G*)]*100. **IRP (Index of Regional Policy)** is obtained by dividing the sum of investment in public and semipublic enterprises in Southern Italy (*Is*), subsidised interest loans for the development of Southern Italy (*Fs*), investment grants in Southern Italy (G), public consumption in the South (Cm), and investment in public works in the South (IPm) by the national equivalent datum. In symbols IRP= [(*Is* + *Fs* + *G* + *Cs* + *IPs*)/(l + F + G + C +IP)].

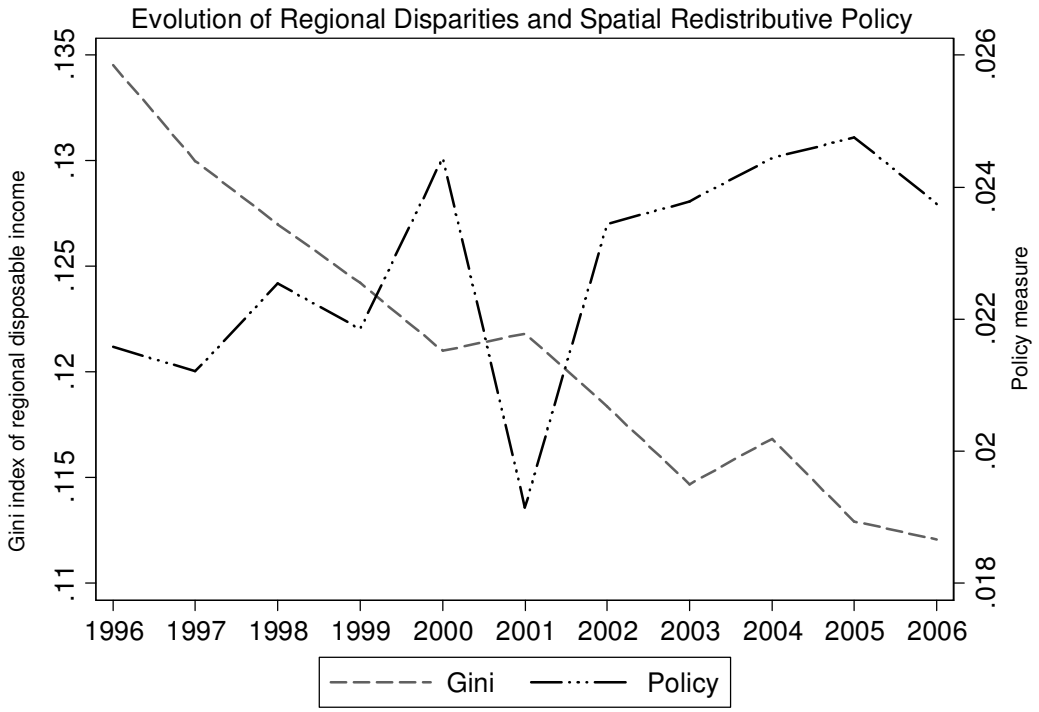
Source: authors' elaboration on Del Monte and De Luzenberger (1989).

Graph 4 – Evolution of transfer from EU



Source: authors' elaboration on Regional Public Accounts

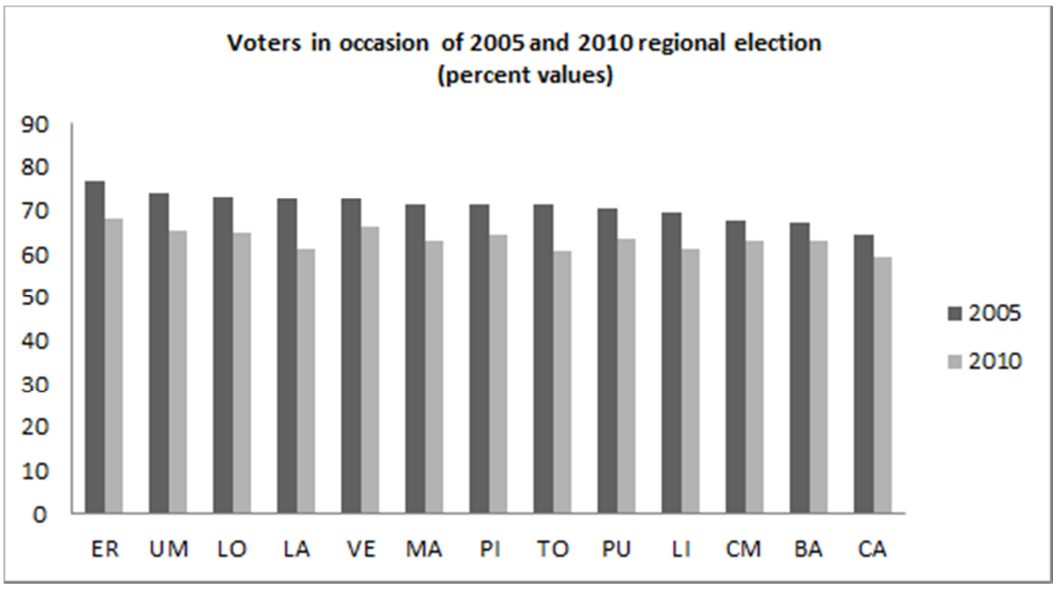
Graph 5 - Evolution of spatial disparities and spatial economic policy



Gini index: Gini index of regional Gross Disposable Household Income per head (GDHI); Policy: difference between Gini index of regional *primary* household income and Gini index of GDHI.

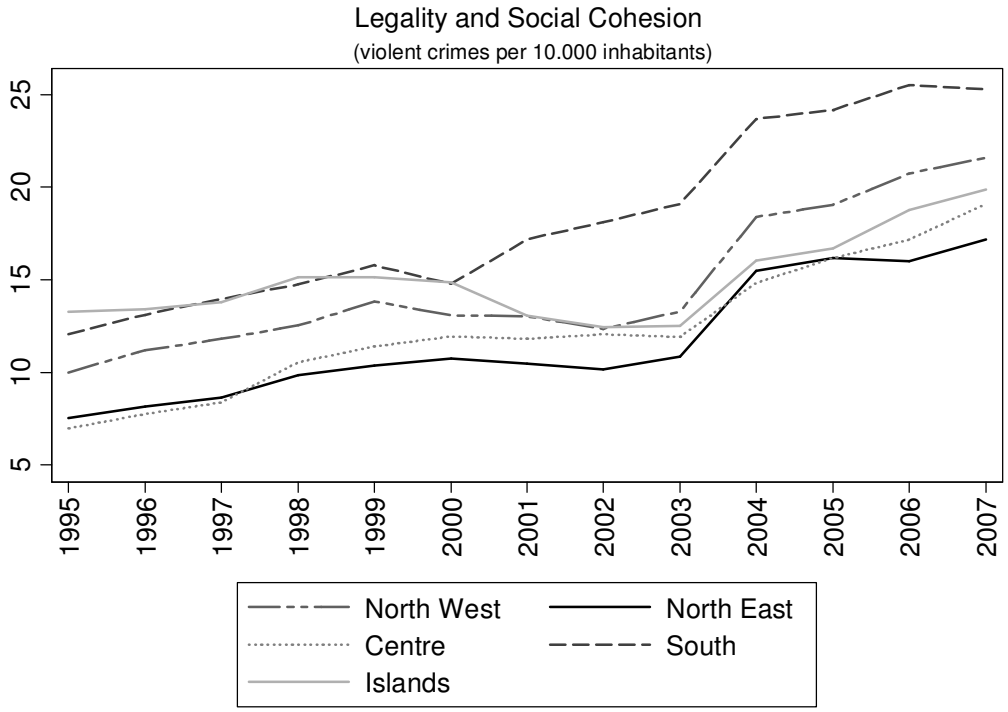
Source: authors' elaboration on data from Eurostat

Graph 6 – Electoral participation



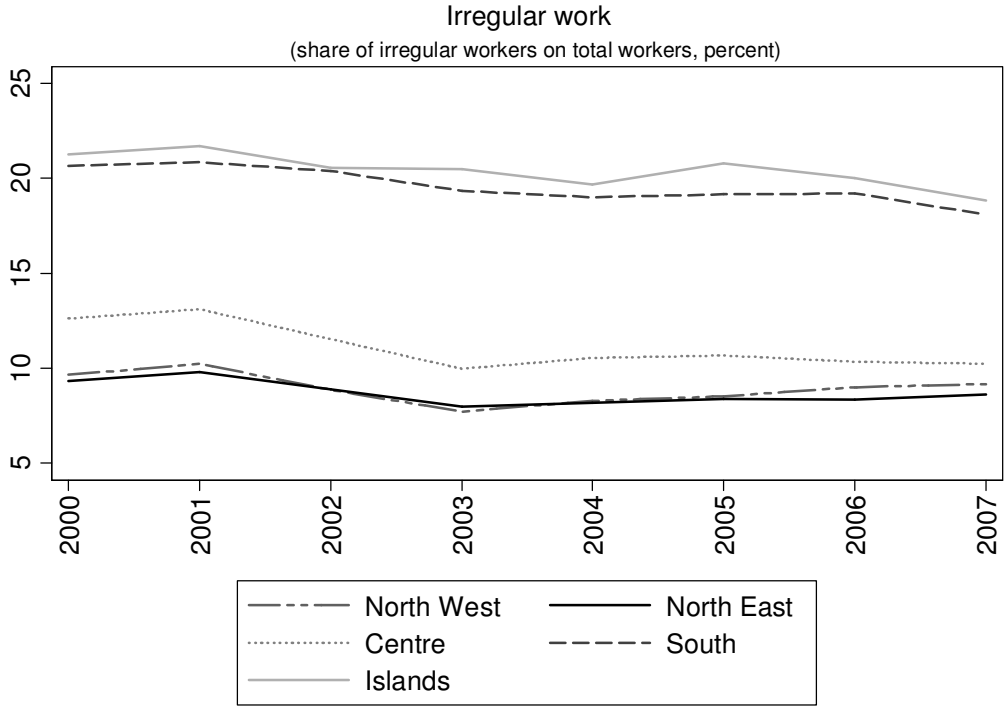
Source: authors' elaboration on ISTAT (2010)

Graph 7 – Legality and Social Cohesion



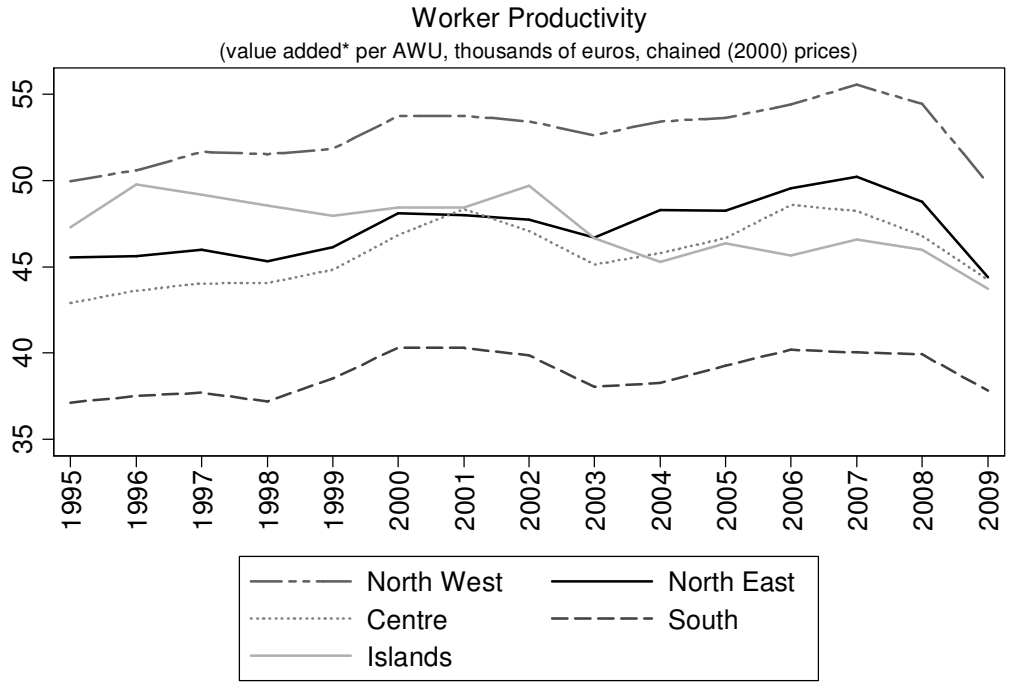
Source: authors' elaboration on data from ISTAT

Graph 8 – Work conditions



Source: authors' elaboration on data from ISTAT

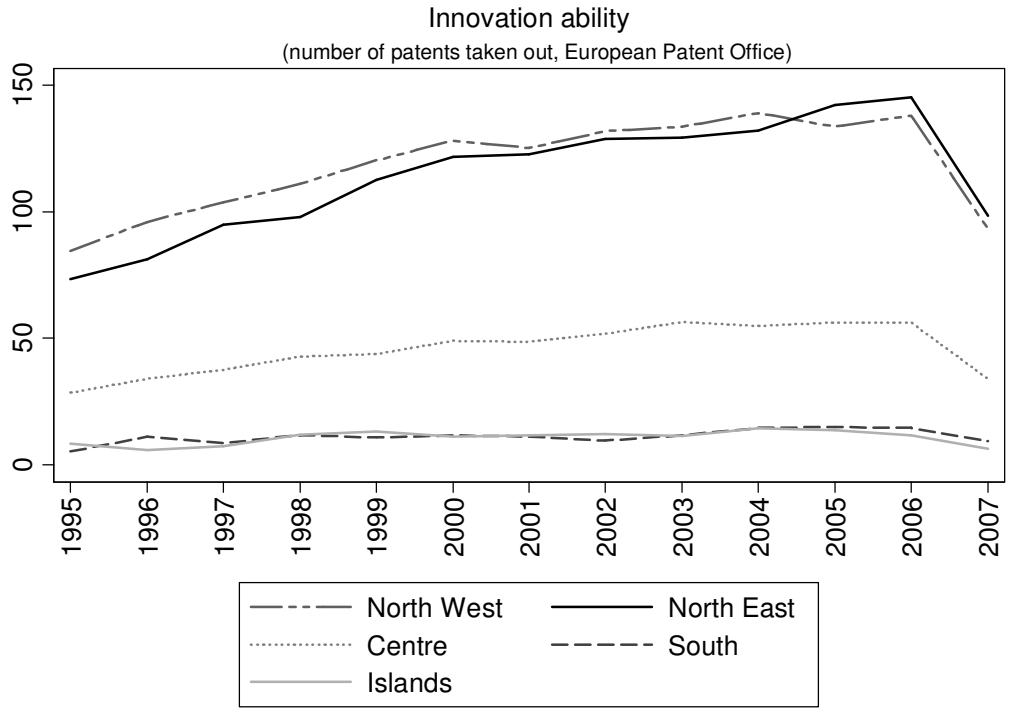
Graph 9 – Workers Productivity



*sectors included: mining, manufacturing and production and distribution of electricity, water and gas.

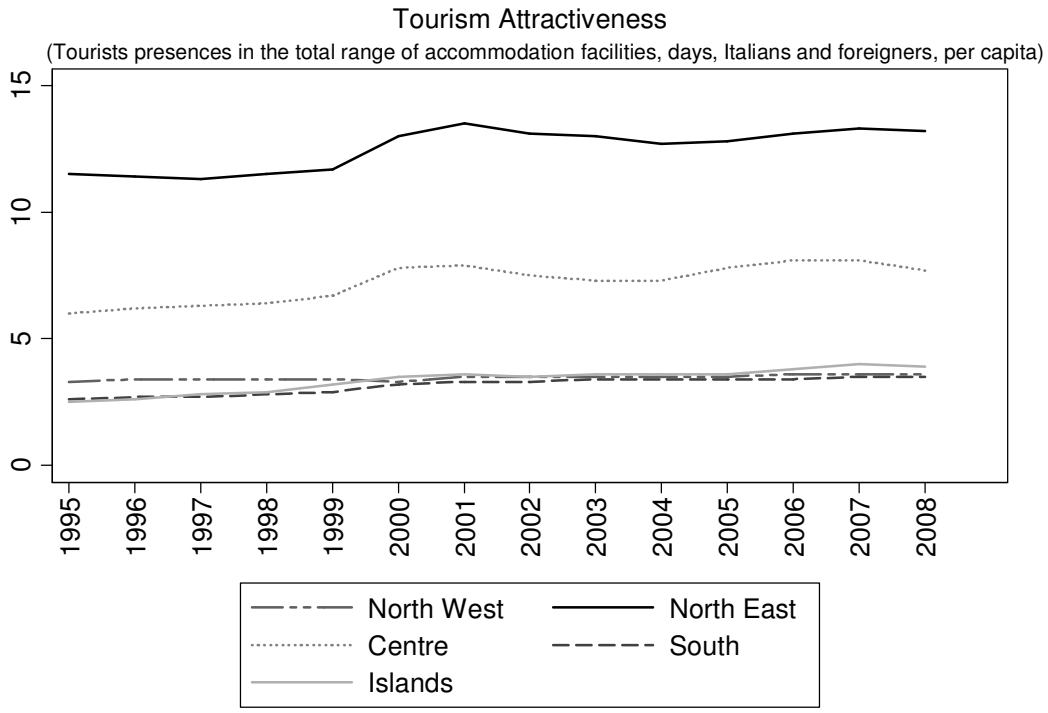
Source: authors' elaboration on data from ISTAT

Graph 10 – Innovation ability



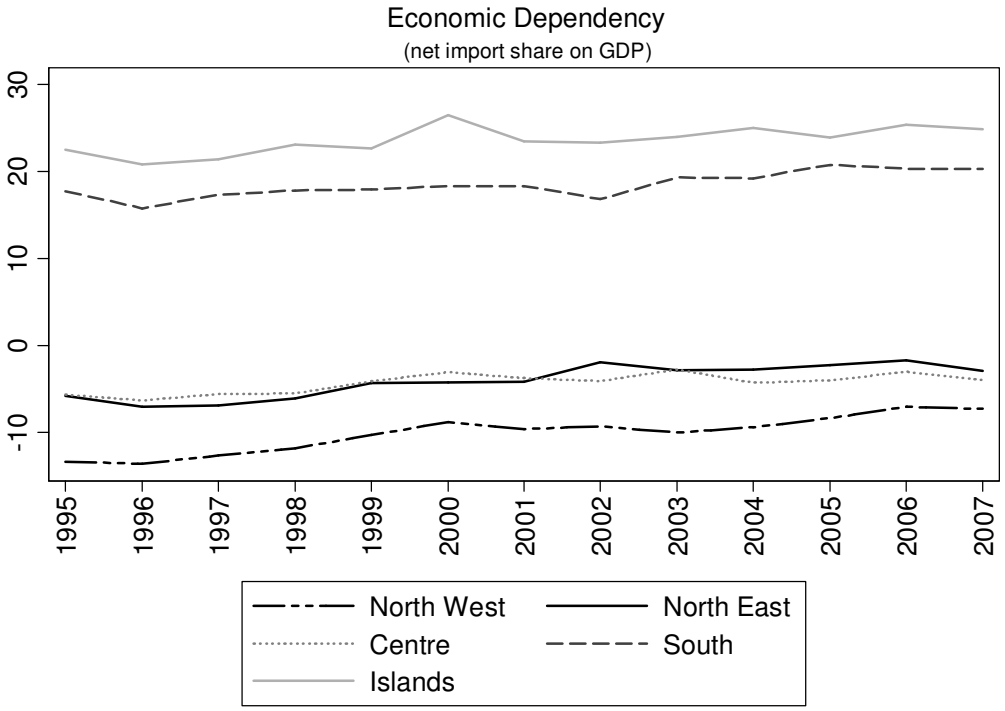
Source: authors' elaboration on data from ISTAT

Graph 11 – Tourism Attractiveness



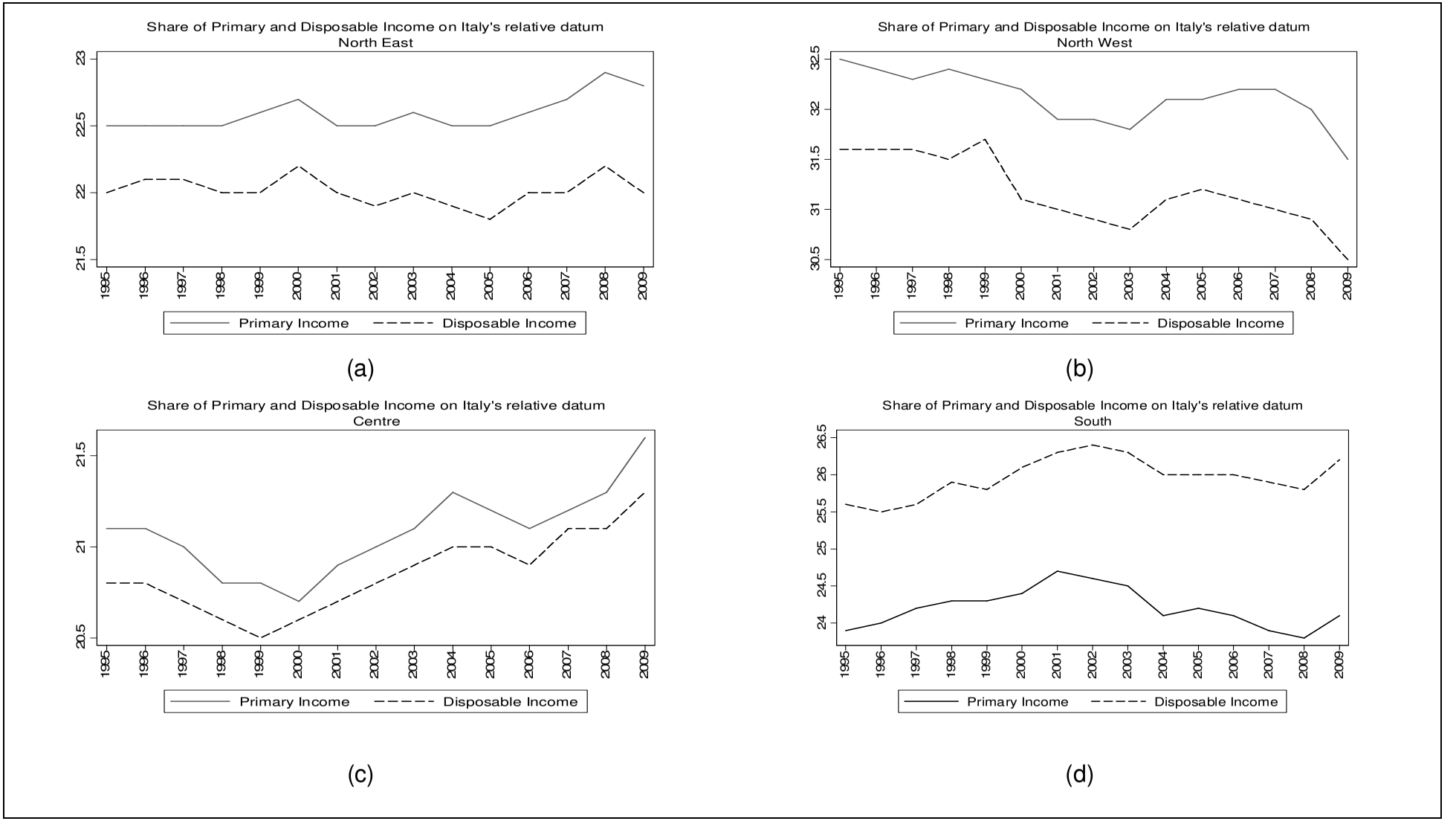
Source: authors' elaboration on data from ISTAT

Graph 12 – Economic Dependency



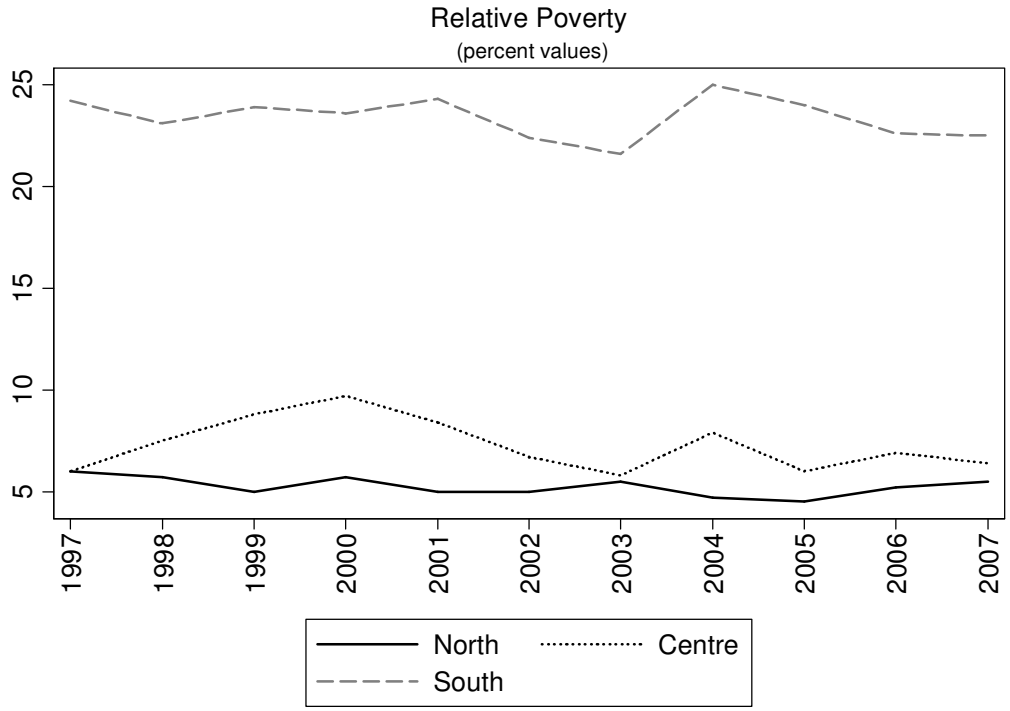
Source: authors' elaboration on data from ISTAT

Graph 13 – Share of Primary and Disposable income on national datum. Macroareas.



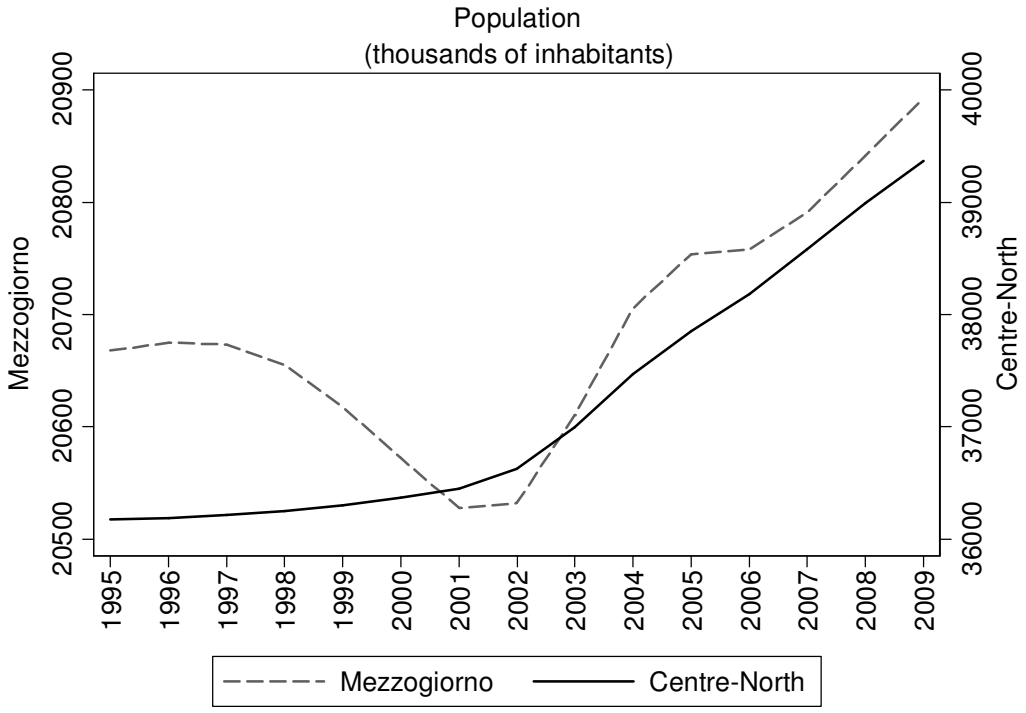
Source: authors' elaboration on data from ISTAT.

Graph 14 – Relative poverty



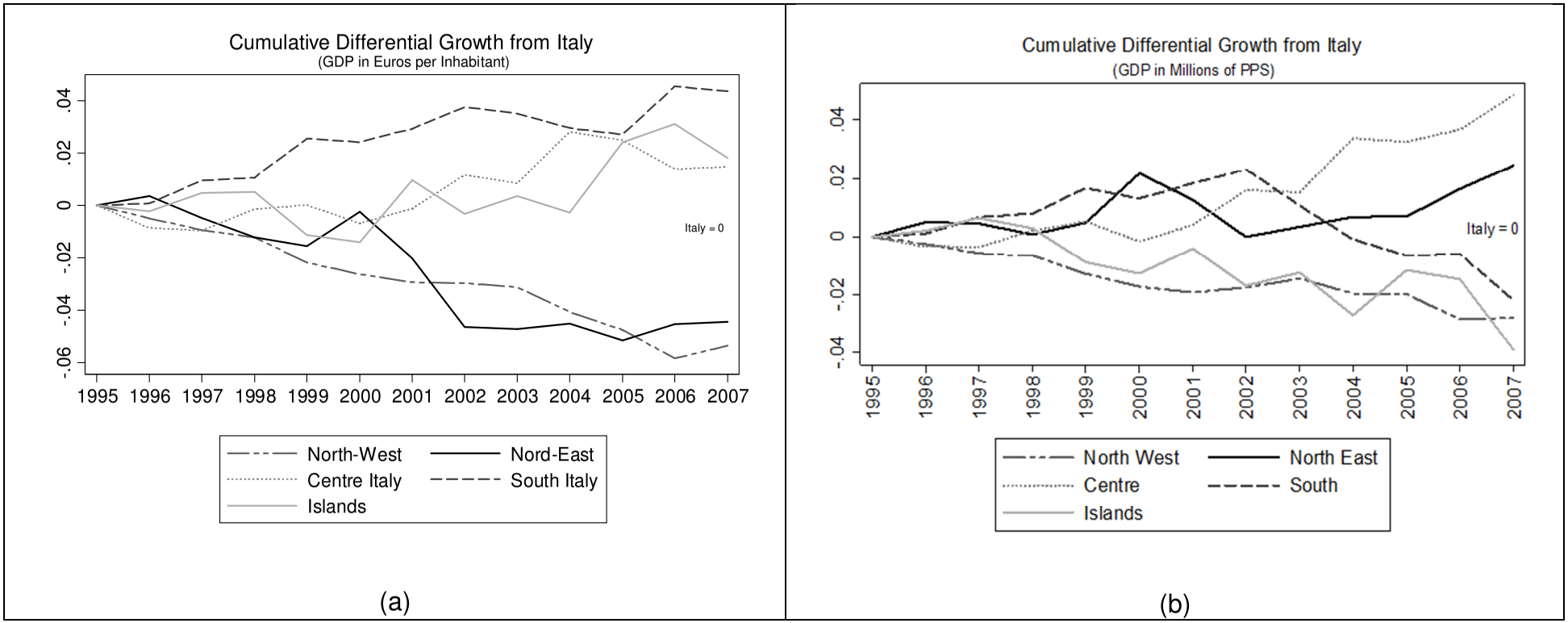
Source: authors' elaboration on data from ISTAT

Graph 15 – Evolution of Italian population, macro-areas.



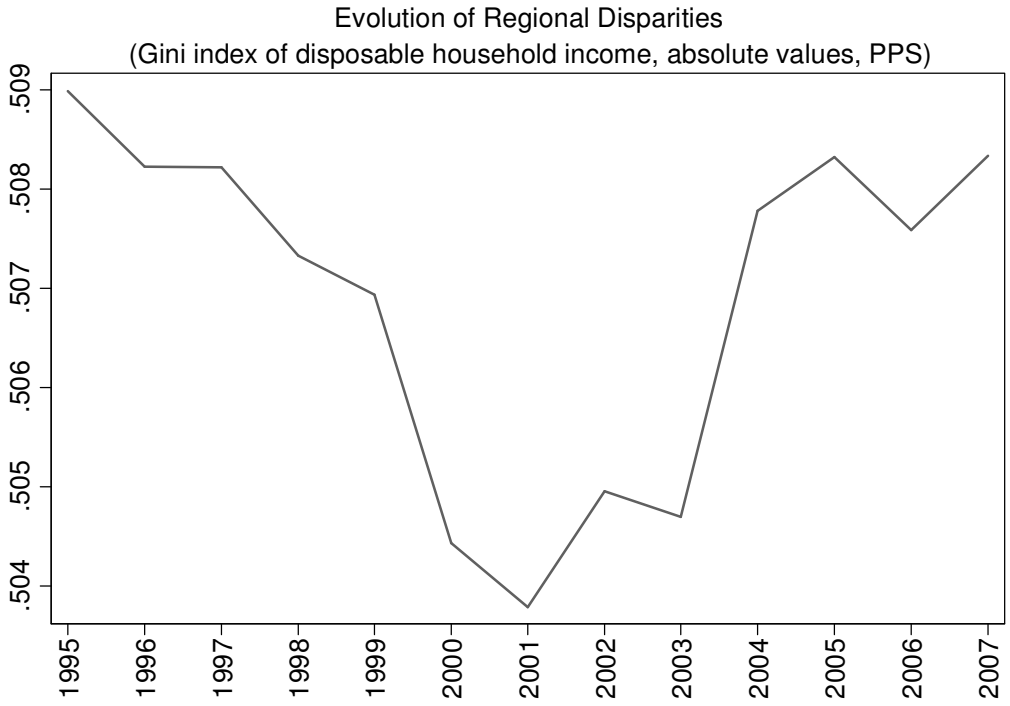
Source: authors' elaboration on data from ISTAT

Graph 16 – Cumulative Differential Growth from Italy



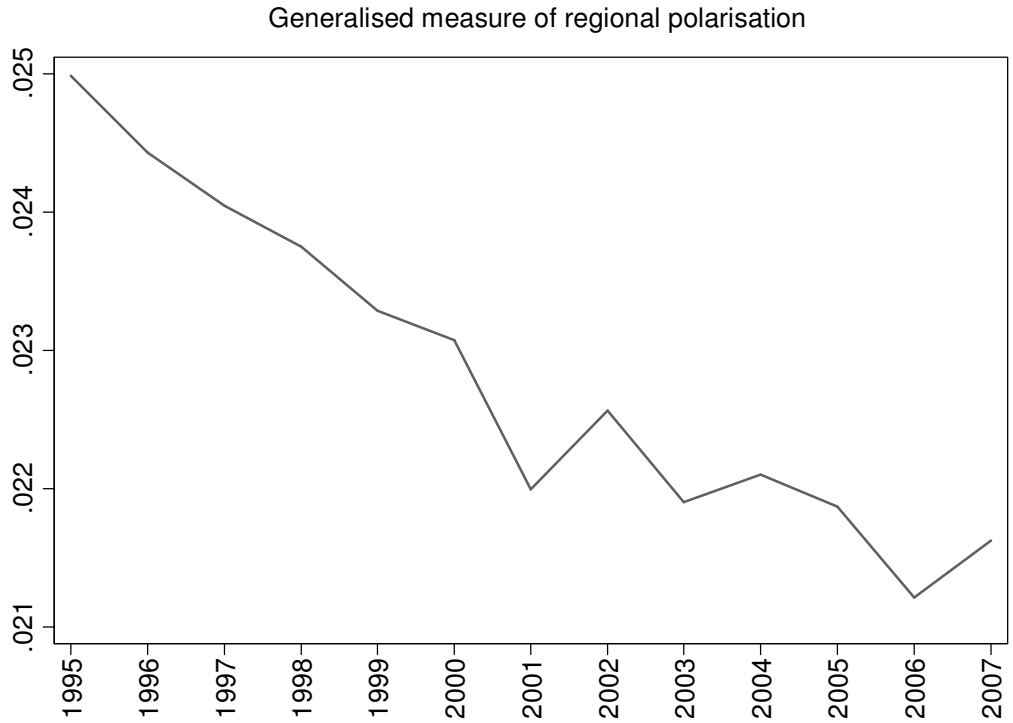
Source: authors' elaboration on data from Eurostat

Graph 17 – Evolution of regional disparities (GDHI in absolute values)



Gini index: Gini index of regional Gross Disposable Household Income per head (GDHI)
Source: authors' elaboration on Eurostat (2010)

Graph 18 – Evolution of regional polarisation



EGR index of GDHI (percapita) regional polarization (n= 3, δ=1.6, λ= 1)

Regions abbreviations and macro-areas composition

Nord-West	
Piedmont	PI
Valle d'Aosta/Vallée d'Aoste	VA
Liguria	LI
Lombardy	LO
Nord-East	
Provincia Autonoma Bolzano/Bozen	
Provincia Autonoma Trento	
Veneto	VE
Friuli-Venezia Giulia	FR
Emilia-Romagna	ER
Centre	
Toscana	TO
Umbria	UM
Marche	MA
Lazio	LA
South	
Abruzzi	AB
Molise	MO
Campania	CM
Puglia	PU
Basilicata	BA
Calabria	CL
Islands*	
Sicilia	SI
Sardegna	SA

*if not separately considered Islands are included in the South macro-area.